Standard Test Methods for Radiation Pyrometers

Used by:

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The calibration and testing of HEIMANN Radiation Pyrometers are done according to the *Standard Test Methods for Radiation Thermometers (Single Waveband Type) E1256-88* of the *AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)*.

HEIMANN specified the reduction level of 10.3.2 as 5%. As a result, the definition of the target field of view is 95% of the total energy.

The ASTM Standard E1256.88 does not describe how to calibrate and test a radiation pyrometer if its field of view is bigger than the available calibration source cavity diameter. For this situation, HEIMANN uses the following *Transfer Method.*

Transfer Method

1. Description
   - Calibration of Radiation Pyrometer with a bigger field of view than the calibration source.
2. Test Conditions
   - According to E1256 6.2 except 6.2.7.
3. Transfer Objective
   - The original objective will be replaced with a transfer objective, which produces a focus that is smaller than the calibration source. Typical focus is = ½" diameter at 12" distance.
4. Test Method
   - The calibration is done according to E1256 6.3.
5. Transfer step 1
   - The instrument is placed in front of a *black plate* (as close as possible, typical distance is 1"). The read out of the instrument is registered.
6. Transfer step 2
   - The original objective is mounted onto the instrument.

7. Transfer step 3
    - The instrument is placed in front of the *black plate* (same position as before). The read out of the instrument is registered. The calibration factor of the instrument will be changed until the read out is the same as with the result in Transfer step 1 (#5).

Black plate description:

Emissivity: approx. 0.95
Diameter: 8”
Temperature: approx. 350ºC